

## Chapter Nine: Cape Cod National Seashore Infrastructure



The Cape Cod National Seashore has three types of properties within its boundaries. One is National Park Service facilities, houses, waste disposal systems, and storage tanks. Contracted homes also exist within the National Seashore which are federally owned, but privately occupied. Many of these homes are located adjacent to surface water bodies such as ponds and marshes. They will be turned over to the National Park Service for occupancy within the next two years; however, the National Park Service will also inherit the underground storage tanks, septic systems and all other components of the property. At this time, no criteria has been established to determine the fate of these homes. And finally, there are grandfathered private properties or “inholdings” that will always exist within the National Seashore, but will never fall under ownership of the National Park Service unless donated or sold to Cape Cod National Seashore. What all of these properties have in common is that they exist and function within the National Seashore and have the potential to impact public water resources. For this reason, it is important to examine the inventory of all properties, regardless of ownership status, within the park.

### FACILITIES CURRENTLY OWNED AND OCCUPIED BY NATIONAL PARK SERVICE

#### Problem History

There are approximately 80 National Park Service owned housing units within the National Seashore that are suitable for year-round or seasonal residence (Figure 9.1a-c). All of these units predate the establishment of Cape Cod National Seashore. The National Seashore has the capacity to house approximately 24 year-round employees and 138 seasonal employees. Some of these housing units are located near or adjacent to ponds and estuaries. Unfortunately, there exists a shortage of housing for both seasonal and year-round employees, so it is difficult to

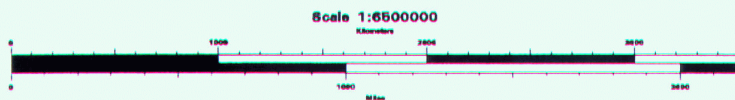
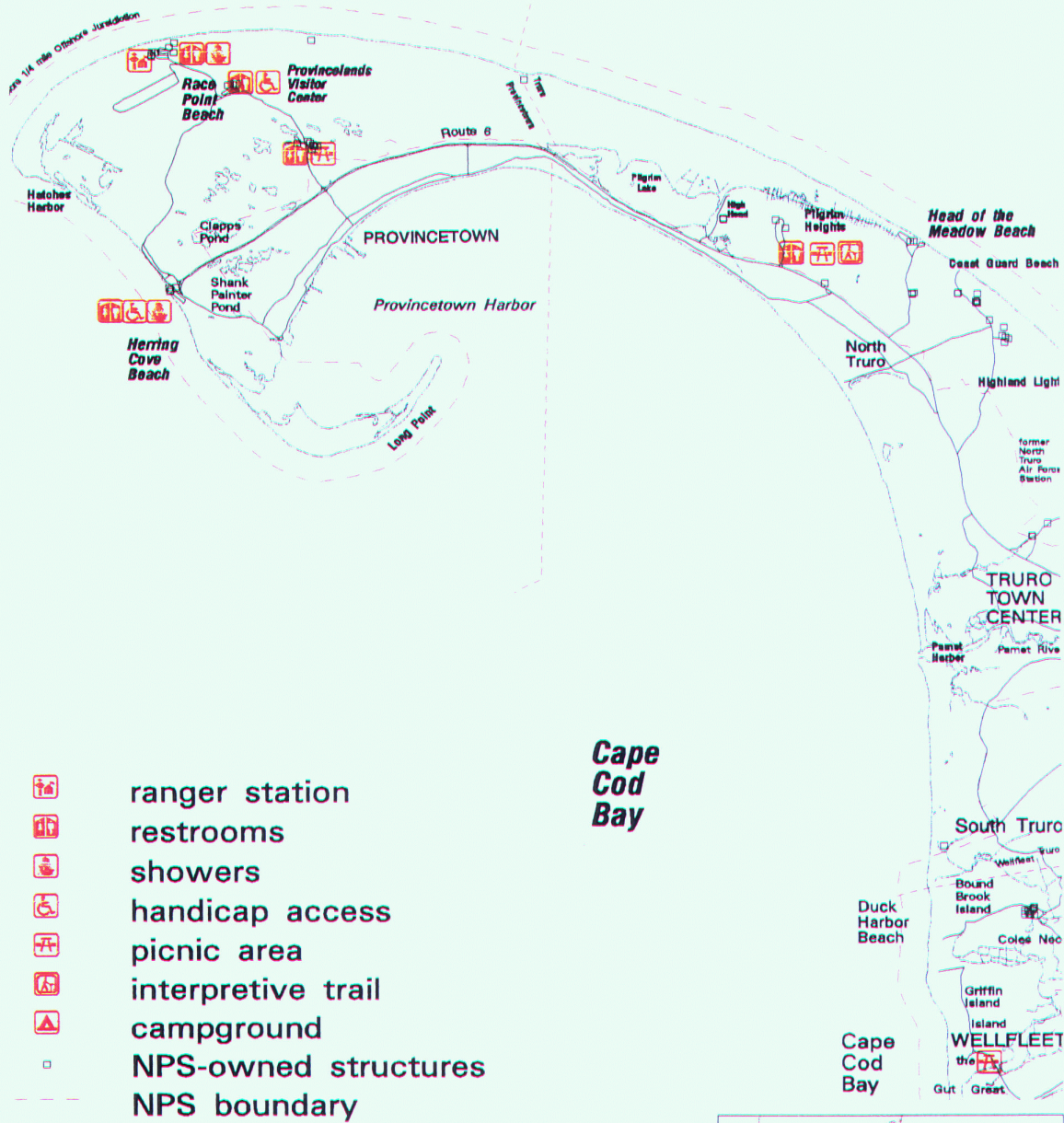
close units. However, as the park acquires former use and occupancy units, it will aggressively seek to use them as alternatives to housing located in sensitive resource areas. Two such houses were vacated in 1999.

Septic systems, both within and outside the National Seashore boundaries, carry the same potential for ground and surface water contamination. The National Seashore is subject to Massachusetts Title 5 regulations. As funds become available or as failures occur, septic systems are replaced.

The town of Eastham requires that all septic systems within the town and owned by the

# Water Resources Management Plan **Figure 9.1a: Facilities - Provincetown/Truro Quads** **Cape Cod National Seashore**

Sources: USGS quadrangles; 1991 aerial photos.





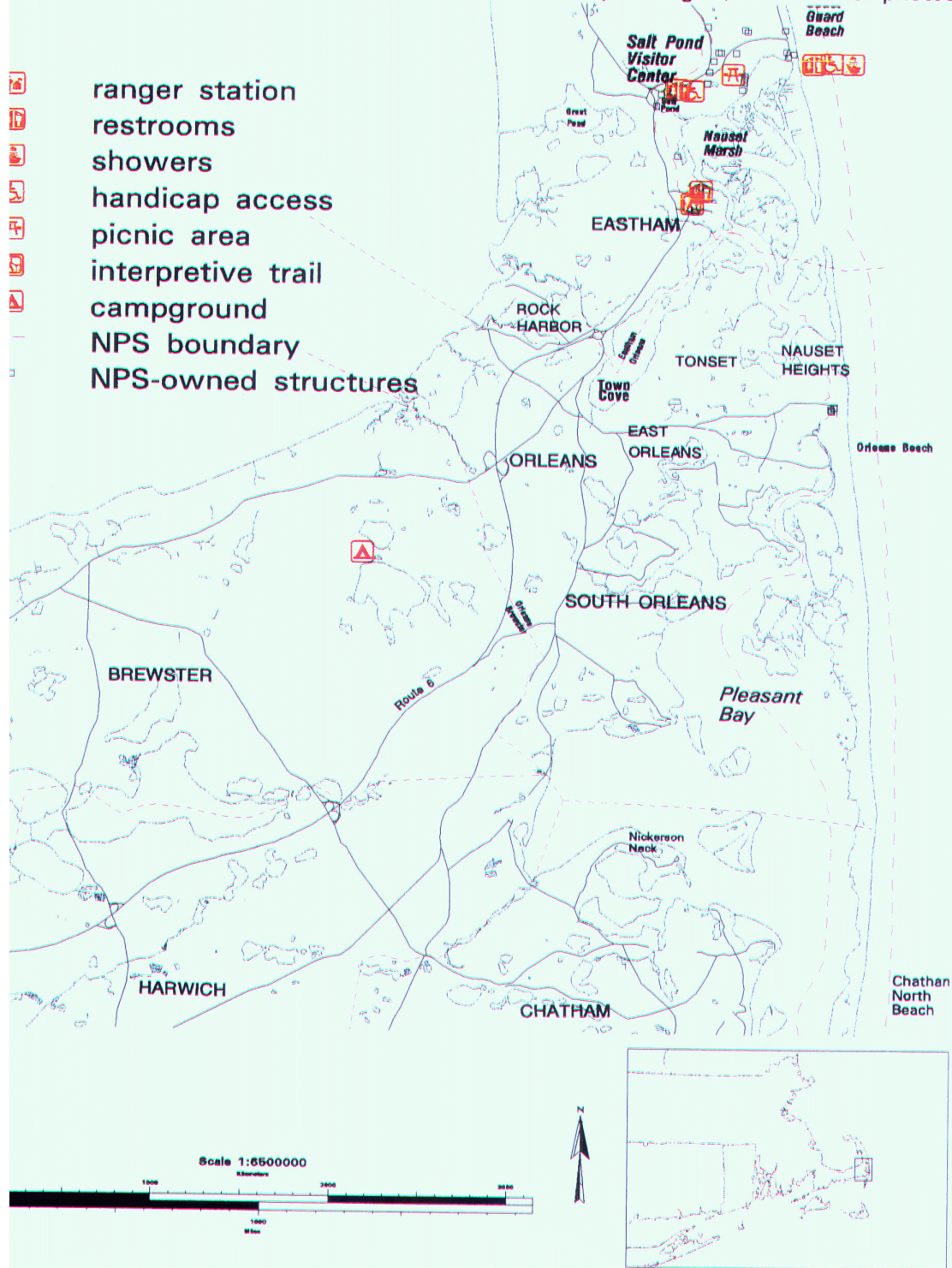
Sources: USGS quadrangle maps; 1991 aerial photos





# Water Resources Management Plan **Figure 9.1c: Facilities - Orleans/Chatham Quads** **Cape Cod National Seashore**

Sources: USGS quadrangles; 1991 aerial photos.



National Park Service, undergo regular inspections. Eastham is the only town to enforce such an aggressive inspection program.

Conventional leaching systems such as cesspools, drain pits, septic systems and leaching galleries complete the inventory of on-site wastewater disposal systems located in seasonal and permanent housing, as well as all buildings on the National Seashore, not including utilities. There are also a peat leaching system and a waterloo filter, which are nutrient reduction systems, located on two National Seashore properties. The majority of the systems were installed prior to 1960 (some date back to 1920) and range in size from 500 to 15,000 gallons.

### **Drinking Water Supply**

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The National Park Service tests for contaminants in the water by following testing standards for Massachusetts' Department of Environmental Protection drinking water guidelines (310 CMR 22.00, Drinking Water, 1997) and National Park Service Special Directive 83 (the water standards for the National Park Service, equivalent to the state standards). Results are reported to both agencies. This helps the National Park Service monitor any elevated levels of contaminants closely.

### **Water Use**

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Limited supplies of fresh water on the Cape make water conservation an important part of water resource management for the park as well as for towns on the lower Cape. Provincetown has taken the lead on conservation by working collaboratively with the National Park Service on educating the

public about water conservation. The National Park Service needs to continue to fill a critical role as educator by modeling water conservation strategies at the National Seashore. Table 9.1 reflects annual water use at each of the main visitor centers for 1993 to 1995 (Phipps, 1996, pers. comm., National Park Service). These numbers are reported to the state every year and placed in a yearly water report for Massachusetts. In 1996, the septic system at the Salt Pond Visitor's Center had been declared "failed" (Phipps, 1996, pers. comm., National Park Service). A new Title 5 septic system was designed and went online in 1998.

### **The Challenge**

Manage the infrastructure of the National Seashore in a way that is sustainable for both natural resources and human use. Promote education through the use of innovations in water conservation and wastewater disposal.

Water conservation within the park has occurred to some degree. Funding is the major barrier to park wide implementation of water conserving devices. Low flow shower heads have been installed in all of the houses that are owned and occupied by the Park Service and low flush toilets have been placed in some of the seasonal homes (Table 9.2).

Table 9.1. Water use statistics (in gallons/year) for the Cape Cod National Seashore (see Figure 9.1 a-b for locations)

Location	1993	1994	1995
Marconi Bathhouse, Headquarters	4,981,680	2,101,860	2,302,840
Coastguard Bathhouse	1,800,750	669,300	1,200,400
NEED Building	172,200	295,500	233,800
Salt Pond Visitor's Center	525,700	714,200	636,400
Doane Rock	51,700	51,900	63,100
Hemenway Landing	148,800	90,400	186,000
Herring Cove	424,900	405,300	closed
Head of the Meadows	127,700	200,500	203,500
Nauset Light	619,000	668,800	583,700
Highland Light	50,600	64,200	132,000
Pilgrim Heights	40,400	163,000	143,400
<b>TOTAL</b>	<b>8,943,430</b>	<b>5,424,960</b>	<b>5,685,140</b>

#### **National Park Service Owned Underground Storage Tanks**

The latest inventory of underground storage tanks is dated May 3, 1993 and is summarized in Table 9.3. Any changes in status since this date are not reflected in this summary. Actively used underground storage tanks on the National Seashore, with the exception of the four listed in Table 9.3, are constructed with double walled fiberglass and hold gasoline, heating fuel, fuel oil, and diesel. These new tanks range in size from 1,000 to 4,000 gallons.

Table 9.2. Number of improved properties by town within the National Seashore.

Chatham	9	Wellfleet	28
Eastham	5	Truro	14
Orleans	0	Provincetown	12

Table 9.3. Summary of recorded underground storage tanks owned by the National Seashore.

Status	Number	Remarks
Removed	19	Removed in past 10 years
Installed	11	Double walled fiberglass tanks; Less than 10 years old
Unknown	3	NEED building, Ahearn house, and N K Motel
Steel	1	Airport/Camp Wellfleet, Aviation gas

## CONTRIBUTING ISSUES

### Use and Occupancy Houses

In 1997, there were 68 homes that were part of the use and occupancy reservations in the park. About one-half of those reservations expired in 1998 and 1999. The owners entered into contracts with the National Park Service when their houses were purchased (mainly 1962 to 1975). They agreed to turn over possession of their homes to the National Park Service after a specified number of years. The fate of these homes once they come into federal hands is particularly important now as 45 of the permits run out between 1998 and 1999.

Many of these homes are on pond shorelines or close to other surface waters, which could be receiving negative impacts from their use. The planners at the National Seashore are currently putting together criteria for management of these properties based on financial constraints and demographic needs within the park. Water quality is the primary consideration in deciding on maintenance or removal. As discussed earlier in this section, when use of such a house can allow closure of a current employee housing unit in a sensitive resource area, the exchange will be made.

### Private Inholdings

Currently, there are over 600 homes within the National Seashore that represent private improved properties. The National Seashore's enabling legislation defines an improved property as "a detached, one-family dwelling the construction of which was begun before September 1, 1959...together with so much of the land on which the dwelling is situated, the said land being the same ownership as the dwelling, as the Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated."

These private properties, within the boundary of the National Seashore, cannot be acquired by the National Park Service through eminent domain, and owners are allowed to sell their properties to others.

There is no formal coordination of management or collaboration between these residents and the National Park Service other than that mandated by town zoning bylaw concerning redevelopment or expansion of

improvements. While the infrastructure represented by these inholdings does not belong to the National Seashore, it, nevertheless, is an important consideration in managing National Seashore water resources.

These homes must conform to the regulations of the town in which they are located. During the year following the establishment of the National Seashore, the towns, which had lands falling partially within the boundary of the National Seashore, established zoning laws that were in accord with the zoning standards prescribed by the Secretary of the Interior. The enabling legislation stated that once a town had adopted a zoning bylaw that complied with the federal zoning standards, the National Park Service could not acquire properties in that town through condemnation as long as they conformed to the bylaw. The zoning standards were to: 1) support the prohibition of commercial and industrial uses, other than those permitted by the Secretary, of all property within the boundaries of the National Seashore, and 2) promote the preservation and development of the area comprising the National Seashore in accordance with the purpose of the legislation.

However, the Secretary can acquire property through a certificate of condemnation when a property fails to conform to the bylaws or a town grants a variance which the Secretary believes is inconsistent with the purposes of the park and when such acquisition supports the purposes of the National Seashore.

In addition to the enabling legislation, the National Seashore also has a Land Protection Plan (Killian, 1985) and a set of guidelines which provide examples of compatible and non-compatible development activities on lands within the National Seashore. By following the zoning bylaw for their town, property owners are able to continue their occupation of the area and avoid the issuance of a certificate of condemnation. The guidelines provide additional information and suggestions on ways to keep redevelopment appropriate. Since the National Park Service has little authority to enforce these guidelines, the National Park Service has encouraged the towns to adopt the guidelines into their zoning bylaws. The town of Eastham is the first and only town to include the guidelines in their zoning bylaws (National Park Service, 1998). Adjustments to the guidelines and zoning are warranted and will be discussed with relevant towns.



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## **Management Steps : National Seashore Infrastructure 400 Days to 5 Years**

### **Committee**

Communicate on ways to improve local zoning and discuss the consistent management of the town lands that are located inside the National Seashore boundary. Work with towns to model an inspection ordinance for septic systems as Eastham has done. Redefine “infrastructure” as all homes and structures located within the National Seashore.

### **Education**

Develop informational flyers and newsletters for residents within the National Seashore boundary informing them of their special role in natural resource management and preservation on the Cape. Encourage these residents and others to become knowledgeable about the model home development and the newsletter as tools for education and water conservation.

### **Data Management**

Survey residents within National Seashore boundaries in order to assess the type and efficiency of wastewater treatment systems. Evaluate the current infrastructure of the National Seashore and compile all inventories on a single database. Evaluate contracted homes with criteria that relate to their potential impact to surface and ground water quality.

### **Research**

Evaluate the current water and wastewater infrastructure of the National Seashore. Audit the existing inventory and recommend replacement based on assessed risk to water quality. Review alternative wastewater management techniques and implement one on a trial basis. Meter water use at National Seashore facilities and evaluate alternative hardware and behavioral approaches to water conservation.

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